

# NANOFABRICATED PHOTON TUNNELING BASED SENSOR

## Abstract of the Disclosure

A system and method for detecting changes in the refractive index of a fluid in a small test volume. A change in the refractive index can indicate a change in the chemical composition of the fluid. The test volume has a depth comparable to or less than the wavelength of incident light. In one embodiment, an internal surface of the volume is coated with a binding partner selected to bind with a targeted molecule. When the targeted molecule binds to the binding partner, the optical properties of the system change. The refractive index is determined by illuminating the test volume with laser light and measuring transmitted or reflected light.

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